CLAIMS

1. (D) An electron beam irradiation device for irradiating an electron beam to a belt-shaped irradiated object while making the irradiated object travel,

(E) the electron beam irradiation device comprising:

(A) an electron beam generating section which generates the electron beam and emits the electron beam to an outside from a transmission window part;

(B) an irradiation chamber adjacent to the transmission window part of the electron beam generating section, having partitions surrounding a periphery, a feed-in opening which opens on the partition to allow the belt-shaped irradiated object to be fed in, and a feed-out opening which opens on the partition to allow the belt-shaped irradiated object to be fed out, and formed as a closed space filled with inert gas, in which the electron beam emitted from the transmission window section is irradiated to the belt-shaped irradiated object fed in from an outside and travels the inside; and

(C) an oxygen cutoff section adjacent to the irradiation chamber on an upstream side in an irradiated object traveling direction, having a feed-in opening for feeding in the belt-shaped irradiated object, and a feed-out opening for feeding out the belt-shaped irradiated object, and formed as a closed space, in which the belt-shaped irradiated object travels to be introduced to the irradiation chamber, the inert gas is blown to the irradiating surface side of the irradiated object, and oxygen in the air accompanying a vicinity of a surface of the irradiated object to flow in is shut off or diluted, wherein:

(C1) the oxygen cutoff section surrounds the irradiated object with a surface side partition facing a side of the irradiating surface of the traveling belt-shaped irradiated object, a backface side partition facing to a side opposite to the irradiating surface of the irradiated object, and a pair of sideface side partitions facing both sideface sides of the irradiated object,

(C2) a gap Ws between the surface side partition and the backface side partition of the oxygen cutoff section, and a gap We between the surface side partition and the backface side partition of the irradiation chamber and across the belt-shaped irradiated object in the irradiation chamber satisfy an inequality $Ws < We$,

(C3) the gap Ws between the surface side partition and the backface side partition of the oxygen cutoff section is made uniform or almost uniform throughout an entire area of the oxygen cutoff section and,

(C4) a blowing slit for the inert gas is provided on the surface side partition of the oxygen cutoff section, with a blowing opening thereof being not projected form or caved in the surface side partition of the oxygen cutoff section.

2. The electron beam irradiation device according to claim 1, further provided with a coating part for coating a liquid electron beam curing resin in a non-curing state on the surface of the irradiated object on the upstream side in the irradiated object traveling direction in the oxygen cutoff section.

3. The electron beam irradiation device according to claim 1 or 2, wherein the gap Ws between the surface side partition and the backface side partition of the oxygen cutoff section is set to be wider than a thickness of the irradiated object by a range of 1-20mm.

4. The electron beam irradiation device according to any one

of claims 1 to 3, wherein the slit is formed so that a blowing direction of the inert gas from the slit inclines toward the upstream side in the traveling direction relative to a direction perpendicular to the traveling direction of the irradiated object.

5. The electron beam irradiation device according any one of claims 1 to 4, wherein on a downstream side relative to the slit in the traveling direction of the irradiated object, a gas supplying hole for supplying the inert gas for the irradiated object from the same side as the slit is provided.

6. The electron beam irradiation device according to claim 5, comprising a throttle valve for reducing a flow velocity of the inert gas blowing out from the gas supplying hole lower than a flow velocity of the inert gas blowing from the slit.

7. The electron beam irradiation device according to claim 5 or 6, wherein the gas supplying hole is formed as a through hole extending in a direction perpendicular to the traveling direction of the irradiated object.

8. The electron beam irradiation device according to claim 7, wherein a diameter of the gas supplying hole is grater than the gap of the slit.